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| 10/666,174      | 09/18/2003  | Mallikarjun Chadalapaka | 200312982-1         | 8720             |

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HEWLETT PACKARD COMPANY  
P O BOX 272400, 3404 E. HARMONY ROAD  
INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

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| EXAMINER |
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DAILEY, THOMAS J

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| ART UNIT | PAPER NUMBER |
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2152

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11/28/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |   |  |
|------------------------------|--------------------------------------|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/666,174 | <b>Applicant(s)</b><br>CHADALAPAKA, MALLIKARJUN |  |
|                              | <b>Examiner</b><br>Thomas J. Dailey  | <b>Art Unit</b><br>2152                         |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2007.  
 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-23 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Claims 1-23 are pending.

#### ***Response to Arguments***

2. Applicant's arguments filed September 7, 2007 have been fully considered but they are not persuasive. Further, the amendments presented did not overcome all 35 USC § 101 and 112 rejections and necessitated any new grounds of rejections presented in the 35 USC § 101 and 112 subsections of this Office Action.
3. The applicant argues with respect to independent claims 1, 8, 16, 22, and 23 that Gupta (US Pub. No. 2002/0156393) fails to teach, "determining whether the request for the data transfer contains a request for acknowledgment of the completion of the data transfer."
4. The examiner disagrees. In the cited portion of Gupta ([0063], lines 18-20) after the data transfer is completed, a notification (acknowledgment) of the completion of the data transfer is sent out. Therefore when the initial request is made ([0063], lines 9-11), in the broad sense, such as how the claim is written in its current form, a determination is made to send to send the acknowledgment after the completion of the data transfer as Gupta clearly sends the acknowledgment.

5. The applicant further argues with respect to independent claims 1, 8, 16, 22, and 23 that Gupta fails to teach "setting a variable in memory to wait for an event to correspond to the completion of the request for data transfer" and the examiner's conclusion that it is inherent in Gupta's teaching is incorrect.
6. The examiner disagrees. Gupta explicitly teaches, after the data transfer is completed, a notification (acknowledgment) of the completion of the data transfer is sent out and waiting for an event that corresponds to the completion of the request for data transfer and sending an acknowledgement upon the occurrence of the event ([0063], lines 18-22). However, Gupta does not explicitly teach setting a variable to wait for such event. Nonetheless, such a variable is inherent as Gupta waits for such an event to occur and therefore must be aware when such an event occurs and the only way to this is to utilize the memory of the computer system. Computers necessarily need to store information about past events in memory that directly affect a computer's future operations. In Gupta's case, during the data transfer the computer must be aware that when this data transfer completes it needs to send an acknowledgment. Specifically, Gupta's system is aware that the last packet in the data transfer is unacknowledged (and in fact, all packets acknowledgment state is known) and subsequently waits for that packet to be acknowledged ([0063], lines 28-20) and therefore that information must be stored in memory (i.e. a variable must be set that indicates

the last packet is unacknowledged and when the acknowledgment is received, the notification of the completion of the data transfer follows).

***Claim Rejections - 35 USC § 101***

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 23 is rejected under 35 U.S.C.101 because the claimed invention is directed to non-statutory subject matter.

9. Claim 23 is directed to "a tangible medium having a program for acknowledging a data transfer." A tangible medium *having* a program can reasonably be interpreted as a transmission medium. Claims drawn to components involving signals encoded with functional descriptive material do not fall within any of the categories of statutory subject matter as set forth in 35 U.S.C. 101, and are therefore, ineligible for protection. Language along the lines of "a computer storage medium storing a program..." would be acceptable.

***Claim Rejections - 35 USC § 112***

10. The following is a quotation of the first and second paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention
12. Claim 1, recites, "*receiving* the request for the data transfer *from the first protocol*" (line 8), "*sending* a performance request corresponding to the request for a data transfer *to a third protocol*" (lines 11-12), and "sending an acknowledgement to the first protocol upon the occurrence of the event" (lines 16-17). One of ordinary skill in the art defines a protocol as a set of rules governing the format of messages that are exchanged between computers, and the protocols used in the specification and claims (iSCSI (claim 2), iSER (claim 3), and RDMA (claim 6)) fit with this definition. These specific protocols and protocols in general do not generate, send, or receive requests, nor do they determine what a request contains. Internet Small Computer Interface (iSCSI), for example, is network protocol standard that defines standards that allow SCSI protocol communication over TCP/IP networks. It does not physically do anything; it is essentially a data structure. While the specification recites similar limitations to what is recited in the claims, this does not adequately enable one of

ordinary skill in the art to make and use the invention because protocols are being used to carry out process steps without elaboration as to how such steps can be carried out by a set of rules governing the format of messages that are exchanged between computers.

13. Claim 8 recites, "receiving a data exchange request from the first protocol layer" (line 10), "sending ... to a third protocol layer" (lines 13-14), and "sending an acknowledgement to the first protocol layer" (lines 17-18). One of ordinary skill in the art defines a protocol as a set of rules governing the format of messages that are exchanged between computers, and the protocols used in the specification and claims (iSCSI (claim 15) and RDMA (claim 11)) fit with this definition. These specific protocols and protocols in general do not generate, send, or receive requests, nor do they determine what a request contains. Internet Small Computer Interface (iSCSI), for example, is network protocol standard that defines standards that allow SCSI protocol communication over TCP/IP networks. It does not physically do anything; it is essentially a data structure. While the Specification recites similar limitations to what is recited in the claims, this does not adequately enable one of ordinary skill in the art to make and use the invention because protocols are being used to carry out process steps without elaboration as to how such steps can be carried out by a set of rules governing the format of messages that are exchanged between computers.

14. Claims 2-7 and 9-15 are rejected due to their dependence on the above rejected claims.

15. Claims 1-15 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

16. Claim 1, recites, "*receiving* the request for the data transfer *from the first protocol*" (line 8), "*sending* a performance request corresponding to the request for a data transfer *to a third protocol*" (lines 11-12), and "sending an acknowledgement to the first protocol upon the occurrence of the event" (lines 16-17). It is unclear how a protocol, defined to one of ordinary skill in the art as a set of rules governing the format of messages that are exchanged between computers, can generate, send, or receive requests or determine what a request contains. Protocols do not physically do anything; they are essentially a data structure.

17. Claim 1 additionally recites, "**a first protocol for initiating** a request for a data transfer" (line 8) and "**a second protocol for...**" (line 12). These are intended use limitations; language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation (intended use language being one



such example). Therefore, the claims are rendered indefinite as it is unclear what, specifically, the applicant intends to claim.

18. Claim 8 recites, "receiving a data exchange request from the first protocol layer" (line 10), "sending ... to a third protocol layer" (lines 13-14), and "sending an acknowledgement to the first protocol layer" (lines 17-18). It is unclear how a protocol, defined to one of ordinary skill in the art as a set of rules governing the format of messages that are exchanged between computers, can generate, send, or receive requests or determine what a request contains. Protocols do not physically do anything; they are essentially a data structure.

19. Claim 8 additionally recites, "**a first protocol layer for interacting** with a consumer" (line 10) and "**a second layer for...**" (line 11). These are intended use limitations; language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation (intended use language being one such example). Therefore, the claims are rendered indefinite as it is unclear what, specifically, the applicant intends to claim.

20. Claim 23 recites, "a first protocol...for generating a request" (lines 4-5) and "a second protocol stored on the machine readable medium for..." (line 7-8). These are intended use limitations; language that suggests or makes optional but does

not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation (intended use language being one such example). Therefore, the claims are rendered indefinite as it is unclear what, specifically, the applicant intends to claim.

21. Claim 23 additionally recites, "the machine readable medium" (line 7) which lacks antecedent basis.

22. Claims 2-7 and 9-15 are rejected due to their dependence on the above rejected claims.

***Claim Rejections - 35 USC § 103***

23. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

24. Claims 1-6, 8-18, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta et al (US Pub No. 2004/0156393), hereafter "Gupta" in view of Fukae et al (US Pub. No. 2002/0199051), hereafter "Fukae."

25. As to claim 1, Gupta discloses an apparatus for acknowledging a data transfer

(Abstract), comprising:

a processor configured to transfer data according to a plurality of protocols of a protocol stack (Abstract) comprising:

a first protocol for initiating a request for a data transfer ([0063], lines 9-11);

and a second protocol that is adapted to:

receiving the request for the data transfer from the first protocol ([0063], lines 9-11);

determining whether the request for the data transfer contains a request for acknowledgement of completion of the data transfer ([0063], lines 18-20);

if the request for data transfer does contain a request for acknowledgement of the completion of the data transfer, setting a variable in memory to wait for an event to correspond to the completion of the request for data transfer and sending an acknowledgement to the first protocol upon the occurrence of the event ([0063], lines 18-22, a variable is inherently set in memory that corresponds to the completion of the request otherwise it would not be aware when the last acknowledgment is received).

But, Gupta does not disclose sending a performance request corresponding to the request for data transfer.

However, Fukae discloses sending a performance request corresponding to the request for data transfer ([0108]-[0109], a transfer speed (a factor of performance) is negotiated and then a request to maintain that speed is made).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Gupta and Fukae in order to have control over how fast the data transfer is and thereby overall giving greater control over the system to the user or programmer.

26. As to claim 8, Gupta discloses a network, comprising:

- a plurality of systems, at least one of the plurality of systems comprising a protocol stack and a process (Fig. 6, and [0060]);

- at least one input/output device (Fig. 6, and [0060]);

- a network that connects the plurality of systems and the at least one input/output device for communication (Fig. 6, and [0060]); and

- wherein the protocol stack comprises:

- a first protocol layer for interacting with a consumer (Fig. 4 and [0052]);

- a second protocol layer for:

- receiving a data exchange request from the first protocol layer ([0063], lines 9-11);

- examining the data exchange request to determine if an acknowledgement request is indicated ([0063], lines 18-20);

But, Gupta does not disclose sending a performance request corresponding to the data exchange request to a third protocol layer and if the data exchange request contains the acknowledgement request, set a variable in memory to wait for an event that corresponds to the completion of the performance request and send an acknowledgement to the first protocol layer upon the occurrence of the event.

Fukae discloses:

a data exchange request (Abstract);  
sending a performance request corresponding to the data exchange request to a third protocol layer transfer ([0108]-[0109], a transfer speed (a factor of performance) is negotiated and then a request to maintain that speed is made) and if the data exchange request contains the acknowledgement request, set a variable in memory to wait for an event that corresponds to the completion of the performance request and send an acknowledgement to the first protocol layer upon the occurrence of the event ([0110]-[0111], a timer is set that waits for the confirmation of the transfer speed).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Gupta and Fukae in order to

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have control over how fast the data transfer is and thereby overall giving greater control over the system to the user or programmer.

27. As to claims 16 and 23, they are rejected by the same rationale set forth in claim 1's rejection.

28. As to claim 22, it is rejected by the same rationale set forth in claim 8's rejection.

29. As to claims 2 and 17, Gupta and Fukae disclose the invention substantially with regard to the parent claims 1 and 16, and further disclose the first protocol is an internet small computer systems interface ("iSCSI") protocol (Gupta, [0048]).

30. As to claims 3 and 13, Gupta and Fukae disclose the invention substantially with regard to the parent claims 1 and 8, and further disclose the second protocol is an internet small computer systems interface extensions for remote direct memory access ("iSER") protocol (Gupta, [0048]).

31. As to claims 4 and 14, Gupta and Fukae disclose the invention substantially with regard to the parent claims 1 and 8, and further disclose the request for the data transfer comprises an attribute that indicates the request for acknowledgement of completion of the data transfer (Gupta, [0063], lines 18-25).

32. As to claim 5, Gupta and Fukae disclose the invention substantially with regard to the parent claims 1, and further disclose a value of an error recovery level is notified to the second protocol from the first protocol (Fukae, [0069]).
33. As to claims 6 and 18, Gupta and Fukae disclose the invention substantially with regard to the parent claims 1 and 16, and further disclose the third protocol is a remote direct memory access ("RDMA") protocol (Gupta, [0048]).
34. As to claims 7 and 19, Gupta and Fukae disclose the invention substantially with regard to the parent claims 1 and 9, and further disclose the event relates to a zero length remote direct memory access ("RDMA") read completion.
35. As to claim 9, Gupta and Fukae disclose the invention substantially with regard to the parent claim 8, and further disclose receiving the performance request that corresponds to the data exchange request (Fukae, Abstract, lines 1-8 and [0108]-[0109]); and transmitting a message to one of the at least one of the plurality of systems and the at least one input/output device via the network (Fukae, Abstract, lines 1-8).
36. As to claim 10, Gupta and Fukae disclose the invention substantially with regard to the parent claim 8, and further disclose a remote direct memory access network interface card ("RNIC") that is used by the protocol stack to exchange

the message between the at least one of the plurality of systems and the at least one input/output device via the network (Gupta, [0047] discloses the NIC and [0048] discloses it is RDMA enabled).

37. As to claims 11 and 20, Gupta and Fukae disclose the invention substantially with regard to the parent claims 8 and 16, and further disclose the message is a remote direct memory access ("RDMA") write message (Gupta, [0047]-[0048]).

38. As to claim 12, Gupta and Fukae disclose the invention substantially with regard to the parent claim 16, and further disclose the message is a zero length remote direct memory access ("RDMA") read message (Gupta, [0047]-[0048]).

39. As to claim 15, Gupta and Fukae disclose the invention substantially with regard to the parent claim 8, and further disclose the process operates according to a small computer systems interface protocol ("SCSI") (Gupta, [0048]).

40. As to claim 21, Gupta and Fukae disclose the invention substantially with regard to the parent claim 16, and further disclose establishing an error recovery level by the first protocol to indicate the error recovery level in the request for acknowledgement of completion of the data transfer (Fukae, [0069]).



41. Claims 7 and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta in view of Fukae, as applied to claims 8 and 16, in further view of Cheriton et al (US Pat. 6,675,200), hereafter "Cheriton."

42. As to claims 7 and 19, Gupta and Fukae disclose the invention substantially with regard to the parent claims 1 and 9, and but do not disclose setting the variable in memory to wait for an event when the event relates to a zero length remote direct memory access ("RDMA") read completion.

However, Cheriton discloses setting the variable in memory to wait for an event when the event relates to a zero length remote direct memory access ("RDMA") read completion (column 6, lines 30-35).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Gupta and Fukae with Cheriton in order use a known practice to indicate that there is no more data to send.

### ***Conclusion***

43. Applicant's amendment necessitated any of the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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44. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

45. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas J. Dailey whose telephone number is 571-270-1246. The examiner can normally be reached on Monday thru Friday; 9:00am - 5:00pm.

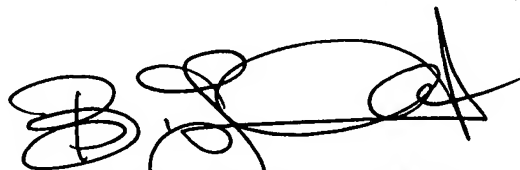
46. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on 571-272-3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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47. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



TJD  
11/26/2007



BUNJOB JAROENCHONWANIT  
SUPERVISORY PATENT EXAMINER

11/26/07